IDT8-017 | Tropical legume project impact on groundnut improvement research outputs in Nigeria

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Groundnut is an important component of the farming systems in the dry savannas of Nigeria. It is planted on 34% of cultivated area and contributes to 54% of household cash in the country. Groundnut production in Nigeria has suffered from major setbacks; fungal and bacteria diseases, aflatoxin contamination and weak seed system. However, considerable progress had been made by IAR, ICRISAT and several partners to overcome these setbacks through the development and deployment of improved groundnut varieties and associated crop management systems. Earlier released Rosette resistant varieties, RMP12 (SAMNUT10) and RMP91 (SAMNUT11), were late maturing varieties. With climate change resulting in shortened growing season, the need for early-maturing, disease- and drought-tolerant varieties became urgent. Collaborative efforts of several partners resulted in the official registration and release of medium duration: SAMNUT21 (UGA2), SAMNUT22 (M 572, 80I), and early-maturing varieties SAMNUT23 (ICGV-IS 96894) in 2001. With the arrival on the scene of the Tropical Legume Project (TL), along with the excellent research and development support, Samnut-24 and Samnut-25 and Samnut-26, were released. These varieties are part of the achievements from TL activities during 2012-13 and are our pride. These varieties are making a difference in the lives of farmers, improved the sustainability of the systems and also increased the cultivation of groundnut even in the dry season. TL project in Nigeria took the unique opportunity to partner with USAID-Groundnut up-scalling project to build capacity of farmers and awareness of improved production technologies and make seeds of improved varieties available.

IDT8-018 | Drought impacts on fungal and mycotoxin contamination of small-scale maize from the North-West province of South Africa

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Drought stress and high temperatures are two environmental factors that directly impact maize and other grains. Prevalence varies geographically, as does the risk of mycotoxin contamination of grains. Often climate extremes may alter the composition of fungal species infecting maize, which invariably could alter the mycotoxins contaminating infected grains. Contamination of foods by fungi and mycotoxins has been linked to various health and economic implications to both man and animals. This study evaluates the incidence of fungal species and mycotoxins contaminating small-scale maize from North West province of South Africa. A total of 100 maize samples were randomly collected from small-scale farmers across the province. Samples were investigated for fungal contamination using conventional and molecular methods to identify fungal species. Mycotoxin analysis was done using IAC, TLC, HPLC and ELISA. Percentage incidence of different genera revealed the predominance of *Fusarium* (82%), *Penicillium*, (63%) and *Aspergillus* species (33%). Among the species, *Fusarium verticilloides* had the highest incidence of 76% while *P.digitatum* had 56% total incidence and *Aspergillus fumigatus* (27%). Mycotoxin analysis revealed that FB_1 was the most contaminant mycotoxin, with incident rate of 100%. Aflatoxins contamination occurred in 26.7% while OTA had a high incident rate of 97.8% and ranged from 3.60 to 19.44 µg/kg cereal. None occurred in 50% of samples. Results showed that maize from small-scale farmers may contribute to dietary exposure to mycotoxins. Although little can be done to influence weather, farmers can make agronomic management decisions to minimise the impact of drought on maize quality.